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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,881	11/20/2000	Juha Nurminen	297-009947-US(PAR)	1078

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EXAMINER

CHOE, HENRY

ART UNIT PAPER NUMBER

2817

DATE MAILED: 06/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/716,881

Applicant(s)
Nurminen

Examiner
Henry Choe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

Responsive to communication(s) filed on Nov 20, 2000

- 1) ☒ Responsive to communication(s) filed on Nov 20, 2000
2a) ☐ This action is FINAL.
2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-6, 11-16, 18, and 19 is/are rejected.
7) ☒ Claim(s) 7-10 and 17 is/are objected to.
8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 and 5

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Office Action Summary

Part of Paper No. 6

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DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: In line 2 of claim 5, should "the signal" be --signal--? Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-6, 11, 12, 14-16, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nielsen (Fig. 3).

Regarding claims 1, 11 and 18, Nielsen (Fig. 3) discloses a power amplifier circuit comprising a modulator circuit (Modulator), an amplifier circuit (Amplifier), a filter circuit

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(Filter), a comparator circuit (Comparator) which generates a digital control signal (output of the Comparator) for the modulator circuit (Modulator).

Regarding claim 2, the digital control signal (output of the comparator) is used to change at least one reference level in the modulator circuit (Modulator).

Regarding claim 3, the signal (output of 32) generates in the audio output stage proportional to a previous digital input signal is filtered (Filter).

Regarding claim 4, the feedback circuit bits (output of 32) are added to the filtered signal (Filter) which is proportional to a previous digital input signal.

Regarding claim 5, the feedback circuit signal (output of 32) which is proportional to a previous digital input signal is synchronized with the clock frequency of the input signal.

Regarding claim 6, the digital control signal (output of comparator) is generated more often than the digital input signal changes.

Regarding claim 12, the signal (output of 32) generated in the audio output stage is brought to the comparator circuit (Comparator) from the output of the amplifier circuit (Amplifier).

Regarding claim 14, the modulator circuit (Modulator) in Fig. 3 of Nielsen is functionally equivalent to the claimed sigma-delta converter.

Regarding claim 15, the amplifier (32) in Fig. 3 of Nielsen is a class D amplifier.

Regarding claim 16, the filter circuit (33) in Fig. 3 of Nielsen is a class D amplifier.

Regarding claim 19, the limitation recites in claim 19 is intended use of the invention.

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4. Claims 1 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nielsen (Fig. 2).

Regarding claim 1, Nielsen (Fig. 2) discloses a power amplifier circuit comprising a modulator circuit (Modulator), an amplifier circuit (Amplifier), a filter circuit (Demod), a comparator circuit (Comparator) which generates a digital control signal (output of the Comparator) for the modulator circuit (Modulator).

Regarding claim 13, the signal (output of Demod) generated in the audio output stage is brought to the comparator circuit (Comparator) from the output of the filter circuit (Demod).

Allowable Subject Matter

5. Claims 7-10 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent numbers (6,016,075; 5,115,205; 6,373,334) are the PWMs with the switching amplifiers.

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7.. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Choe whose telephone number is (703) 305-0576. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal, can be reached on (703) 308-4909.



Name: Henry Choe

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